RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _____ 10/685, 258 B _____

Source: _____ IFWO _____

Date Processed by STIC: _____ 05/22/2006 _____

ENTERED

RAW SEQUENCE LISTING   DATE: 05/22/2006
PATENT APPLICATION: US/10/685,258B   TIME: 11:56:27

      Input Set : **A:\34132b.txt**
      Output Set: **N:\CRF4\05222006\J685258B.raw**

```
       3 <110> APPLICANT: Carr, Antony M.
       5 <120> TITLE OF INVENTION: Cell-Cycle Checkpoint Genes
       7 <130> FILE REFERENCE: 27866/34132
C-->   9 <140> CURRENT APPLICATION NUMBER: US/10/685,258B
C-->  11 <141> CURRENT FILING DATE: 2003-10-14
      14 <150> PRIOR APPLICATION NUMBER: PCT/GB96/02197
      16 <151> PRIOR FILING DATE: 1996-09-06
      19 <150> PRIOR APPLICATION NUMBER: GB 9518220.0
      21 <151> PRIOR FILING DATE: 1995-09-06
      24 <160> NUMBER OF SEQ ID NOS: 14
      26 <170> SOFTWARE: PatentIn Ver. 3.1
      29 <210> SEQ ID NO: 1
      31 <211> LENGTH: 8239
      33 <212> TYPE: DNA
      34 <213> ORGANISM: Homo sapiens
      37 <220> FEATURE:
      38 <221> NAME/KEY: CDS
      39 <222> LOCATION: (80)..(8011)
      41 <400> SEQUENCE: 1
      42 gcgctcttcc ggcagcggta cgtttggaga cgccgggaac ccgcgttggc gtggttgact 60
      43 agtgcctcgc agcctcagc atg ggg gaa cat ggc ctg gag ctg gct tcc atg 112
      44                     Met Gly Glu His Gly Leu Glu Leu Ala Ser Met
      45                      1               5                   10
      46 atc ccc gcc ctg cgg gag ctg ggc agt gcc aca cca gag gaa tat aat 160
      47 Ile Pro Ala Leu Arg Glu Leu Gly Ser Ala Thr Pro Glu Glu Tyr Asn
      48             15                  20                  25
      49 aca gtt gta cag aag cca aga caa att ctg tgt caa ttc att gac cgg 208
      50 Thr Val Val Gln Lys Pro Arg Gln Ile Leu Cys Gln Phe Ile Asp Arg
      51         30                  35                  40
      52 ata ctt aca gat gta aat gtt gtt gct gta gaa ctt gta aag aaa act 256
      53 Ile Leu Thr Asp Val Asn Val Val Ala Val Glu Leu Val Lys Lys Thr
      54     45                  50                  55
      55 gac tct cag cca acc tcc gtg atg ttg ctt gat ttc atc cag cat atc 304
      56 Asp Ser Gln Pro Thr Ser Val Met Leu Leu Asp Phe Ile Gln His Ile
      57 60                  65                  70                  75
      58 atg aaa tcc tcc cca ctt atg ttt gta aat gtg agt gga agc cat gag 352
      59 Met Lys Ser Ser Pro Leu Met Phe Val Asn Val Ser Gly Ser His Glu
      60                 80                  85                  90
      61 cgc aaa ggc agt tgt att gaa ttc agt aat tgg atc ata acg aga ctt 400
      62 Arg Lys Gly Ser Cys Ile Glu Phe Ser Asn Trp Ile Ile Thr Arg Leu
      63             95                  100                 105
      64 ctg cgg att gca gca act ccc tcc tgt cat ttg tta cac aag aaa atc 448
      65 Leu Arg Ile Ala Ala Thr Pro Ser Cys His Leu Leu His Lys Lys Ile
```

(Cpg-6)

```
 66         110                  115                  120
 67 tgt gaa gtc atc tgt tca tta tta ttt ctt ttt aaa agc aag agt cct    496
 68 Cys Glu Val Ile Cys Ser Leu Leu Phe Leu Phe Lys Ser Lys Ser Pro
 69     125                  130                  135
 70 gct att ttt ggg gta ctc aca aaa gaa tta tta caa ctt ttt gaa gac    544
 71 Ala Ile Phe Gly Val Leu Thr Lys Glu Leu Leu Gln Leu Phe Glu Asp
 72 140                  145                  150                  155
 73 ttg gtt tac ctc cat aga aga aat gtg atg ggt cat gct gtg gaa tgg    592
 74 Leu Val Tyr Leu His Arg Arg Asn Val Met Gly His Ala Val Glu Trp
 75                  160                  165                  170
 76 cca gtg gtc atg agc cga ttt tta agt caa tta gat gaa cac atg gga    640
 77 Pro Val Val Met Ser Arg Phe Leu Ser Gln Leu Asp Glu His Met Gly
 78             175                  180                  185
 79 tat tta caa tca gct cct ttg cag ttg atg agt atg caa aat tta gaa    688
 80 Tyr Leu Gln Ser Ala Pro Leu Gln Leu Met Ser Met Gln Asn Leu Glu
 81         190                  195                  200
 82 ttt att gaa gtc act tta tta atg gtt ctt act cgt att att gca att    736
 83 Phe Ile Glu Val Thr Leu Leu Met Val Leu Thr Arg Ile Ile Ala Ile
 84     205                  210                  215
 85 gtg ttt ttt aga agg caa gaa ctc tta ctt tgg cag ata ggt tgt gtt    784
 86 Val Phe Phe Arg Arg Gln Glu Leu Leu Leu Trp Gln Ile Gly Cys Val
 87 220                  225                  230                  235
 88 ctg cta gag tat ggt agt cca aaa att aaa tcc cta gca att agc ttt    832
 89 Leu Leu Glu Tyr Gly Ser Pro Lys Ile Lys Ser Leu Ala Ile Ser Phe
 90                  240                  245                  250
 91 tta aca gaa ctt ttt cag ctt gga gga cta cca gca caa cca gct agc    880
 92 Leu Thr Glu Leu Phe Gln Leu Gly Gly Leu Pro Ala Gln Pro Ala Ser
 93             255                  260                  265
 94 act ttt ttc agc tca ttt ttg gaa tta tta aaa cac ctt gta gaa atg    928
 95 Thr Phe Phe Ser Ser Phe Leu Glu Leu Leu Lys His Leu Val Glu Met
 96         270                  275                  280
 97 gat act gac caa ttg aaa ctc tat gaa gag cca tta tca aag ctg ata    976
 98 Asp Thr Asp Gln Leu Lys Leu Tyr Glu Glu Pro Leu Ser Lys Leu Ile
 99     285                  290                  295
100 aag aca cta ttt ccc ttt gaa gca gaa gct tat aga aat att gaa cct   1024
101 Lys Thr Leu Phe Pro Phe Glu Ala Glu Ala Tyr Arg Asn Ile Glu Pro
102 300                  305                  310                  315
103 gtc tat tta aat atg ctg ctg gaa aaa ctc tgt gtc atg ttt gaa gac   1072
104 Val Tyr Leu Asn Met Leu Leu Glu Lys Leu Cys Val Met Phe Glu Asp
105                  320                  325                  330
106 ggt gtg ctc atg cgg ctt aag tct gat ttg cta aaa gca gct ttg tgc   1120
107 Gly Val Leu Met Arg Leu Lys Ser Asp Leu Leu Lys Ala Ala Leu Cys
108             335                  340                  345
109 cat tta ctg cag tat ttc ctt aaa ttt gtg cca gct ggg tat gaa tct   1168
110 His Leu Leu Gln Tyr Phe Leu Lys Phe Val Pro Ala Gly Tyr Glu Ser
111         350                  355                  360
112 gct tta caa gtc agg aag gtc tat gtg aga aat att tgt aaa gct ctt   1216
113 Ala Leu Gln Val Arg Lys Val Tyr Val Arg Asn Ile Cys Lys Ala Leu
114     365                  370                  375
```

RAW SEQUENCE LISTING   DATE: 05/22/2006
PATENT APPLICATION: US/10/685,258B   TIME: 11:56:27

Input Set : A:\34132b.txt
Output Set: N:\CRF4\05222006\J685258B.raw

```
115 ttg gat gtg ctt gga att gag gta gat gca gag tac ttg ttg ggc cca   1264
116 Leu Asp Val Leu Gly Ile Glu Val Asp Ala Glu Tyr Leu Leu Gly Pro
117 380             385             390             395
118 ctt tat gca gct ttg aaa atg gaa agt atg gaa atc att gag gag att   1312
119 Leu Tyr Ala Ala Leu Lys Met Glu Ser Met Glu Ile Ile Glu Glu Ile
120             400             405             410
121 caa tgc caa act caa cag gaa aac ctc agc agt aat agt gat gga ata   1360
122 Gln Cys Gln Thr Gln Gln Glu Asn Leu Ser Ser Asn Ser Asp Gly Ile
123             415             420             425
124 tca ccc aaa agg cgt cgt ctc agc tcg tct cta aac cct tct aaa aga   1408
125 Ser Pro Lys Arg Arg Arg Leu Ser Ser Ser Leu Asn Pro Ser Lys Arg
126         430             435             440
127 gca cca aaa cag act gag gaa att aaa cat gtg gac atg aac caa aag   1456
128 Ala Pro Lys Gln Thr Glu Glu Ile Lys His Val Asp Met Asn Gln Lys
129     445             450             455
130 agc ata tta tgg agt gca ctg aaa cag aaa gct gaa tcc ctt cag att   1504
131 Ser Ile Leu Trp Ser Ala Leu Lys Gln Lys Ala Glu Ser Leu Gln Ile
132 460             465             470             475
133 tcc ctt gaa tac agt ggc cta aag aat cct gtt att gag atg tta gaa   1552
134 Ser Leu Glu Tyr Ser Gly Leu Lys Asn Pro Val Ile Glu Met Leu Glu
135             480             485             490
136 gga att gct gtt gtc tta caa ctg act gct ctg tgt act gtt cat tgt   1600
137 Gly Ile Ala Val Val Leu Gln Leu Thr Ala Leu Cys Thr Val His Cys
138             495             500             505
139 tct cat caa aac atg aac tgc cgt act ttc aag gac tgt caa cat aaa   1648
140 Ser His Gln Asn Met Asn Cys Arg Thr Phe Lys Asp Cys Gln His Lys
141         510             515             520
142 tcc aag aag aaa cct tct gta gtg ata act tgg atg tca ttg gat ttt   1696
143 Ser Lys Lys Lys Pro Ser Val Val Ile Thr Trp Met Ser Leu Asp Phe
144     525             530             535
145 tac aca aaa gtg ctt aag agc tgt aga agt ttg tta gaa tct gtt cag   1744
146 Tyr Thr Lys Val Leu Lys Ser Cys Arg Ser Leu Leu Glu Ser Val Gln
147 540             545             550             555
148 aaa ctg gac ctg gag gca acc att gat aag gtg gtg aaa att tat gat   1792
149 Lys Leu Asp Leu Glu Ala Thr Ile Asp Lys Val Val Lys Ile Tyr Asp
150             560             565             570
151 gct ttg att tat atg caa gta aac agt tca ttt gaa gat cat atc ctg   1840
152 Ala Leu Ile Tyr Met Gln Val Asn Ser Ser Phe Glu Asp His Ile Leu
153             575             580             585
154 gaa gat tta tgt ggt atg ctc tca ctt cca tgg att tat tcc cat tct   1888
155 Glu Asp Leu Cys Gly Met Leu Ser Leu Pro Trp Ile Tyr Ser His Ser
156         590             595             600
157 gat gat ggc tgt tta aag ttg acc aca ttt gcc gct aat ctt cta aca   1936
158 Asp Asp Gly Cys Leu Lys Leu Thr Thr Phe Ala Ala Asn Leu Leu Thr
159     605             610             615
160 tta agc tgt agg att tca gat agc tat tca cca cag gca caa tca cga   1984
161 Leu Ser Cys Arg Ile Ser Asp Ser Tyr Ser Pro Gln Ala Gln Ser Arg
162 620             625             630             635
163 tgt gtg ttt ctt ctg act ctg ttt cca aga aga ata ttc ctt gag tgg   2032
```

RAW SEQUENCE LISTING   DATE: 05/22/2006
PATENT APPLICATION: US/10/685,258B   TIME: 11:56:27

Input Set : A:\34132b.txt
Output Set: N:\CRF4\05222006\J685258B.raw

```
164 Cys Val Phe Leu Leu Thr Leu Phe Pro Arg Arg Ile Phe Leu Glu Trp
165              640             645             650
166 aga aca gca gtt tac aac tgg gcc ctg cag agc tcc cat gaa gta atc    2080
167 Arg Thr Ala Val Tyr Asn Trp Ala Leu Gln Ser Ser His Glu Val Ile
168              655             660             665
169 cgg gct agt tgt gtt agt gga ttt ttt atc tta ttg cag cag cag aat    2128
170 Arg Ala Ser Cys Val Ser Gly Phe Phe Ile Leu Leu Gln Gln Gln Asn
171              670             675             680
172 tct tgt aac aga gtt ccc aag att ctt ata gat aaa gtc aaa gat gat    2176
173 Ser Cys Asn Arg Val Pro Lys Ile Leu Ile Asp Lys Val Lys Asp Asp
174          685             690             695
175 tct gac att gtc aag aaa gaa ttt gct tct ata ctt ggt caa ctt gtc    2224
176 Ser Asp Ile Val Lys Lys Glu Phe Ala Ser Ile Leu Gly Gln Leu Val
177 700             705             710             715
178 tgt act ctt cac ggc atg ttt tat ctg aca agt tct tta aca gaa cct    2272
179 Cys Thr Leu His Gly Met Phe Tyr Leu Thr Ser Ser Leu Thr Glu Pro
180              720             725             730
181 ttc tct gaa cac gga cat gtg gac ctc ttc tgt agg aac ttg aaa gcc    2320
182 Phe Ser Glu His Gly His Val Asp Leu Phe Cys Arg Asn Leu Lys Ala
183              735             740             745
184 act tct caa cat gaa tgt tca tct tct caa cta aaa gct tct gtc tgc    2368
185 Thr Ser Gln His Glu Cys Ser Ser Ser Gln Leu Lys Ala Ser Val Cys
186          750             755             760
187 aag cca ttc ctt ttc cta ctg aaa aaa aaa ata cct agt cca gta aaa    2416
188 Lys Pro Phe Leu Phe Leu Leu Lys Lys Lys Ile Pro Ser Pro Val Lys
189          765             770             775
190 ctt gct ttc ata gat aat cta cat cat ctt tgt aag cat ctt gat ttt    2464
191 Leu Ala Phe Ile Asp Asn Leu His His Leu Cys Lys His Leu Asp Phe
192 780             785             790             795
193 aga gaa gat gaa aca gat gta aaa gca gtt ctt gga act tta tta aat    2512
194 Arg Glu Asp Glu Thr Asp Val Lys Ala Val Leu Gly Thr Leu Leu Asn
195              800             805             810
196 tta atg gaa gat cca gac aaa gat gtt aga gtg gct ttt agt gga aat    2560
197 Leu Met Glu Asp Pro Asp Lys Asp Val Arg Val Ala Phe Ser Gly Asn
198              815             820             825
199 atc aag cac ata ttg gaa tcc ttg gac tct gaa gat gga ttt ata aag    2608
200 Ile Lys His Ile Leu Glu Ser Leu Asp Ser Glu Asp Gly Phe Ile Lys
201          830             835             840
202 gag ctt ttt gtc tta aga atg aag gaa gca tat aca cat gcc caa ata    2656
203 Glu Leu Phe Val Leu Arg Met Lys Glu Ala Tyr Thr His Ala Gln Ile
204          845             850             855
205 tca aga aat aat gag ctg aag gat acc ttg att ctt aca aca ggg gat    2704
206 Ser Arg Asn Asn Glu Leu Lys Asp Thr Leu Ile Leu Thr Thr Gly Asp
207 860             865             870             875
208 att gga agg gcc gca aaa gga gat ttg gta cca ttt gca ctc tta cac    2752
209 Ile Gly Arg Ala Ala Lys Gly Asp Leu Val Pro Phe Ala Leu Leu His
210              880             885             890
211 tta ttg cat tgt ttg tta tcc aag tca gca tct gtc tct gga gca gca    2800
212 Leu Leu His Cys Leu Leu Ser Lys Ser Ala Ser Val Ser Gly Ala Ala
```

```
213              895              900              905
214 tac aca gaa att aga gct ctg gtt gca gct aaa agt gtt aaa ctg caa    2848
215 Tyr Thr Glu Ile Arg Ala Leu Val Ala Ala Lys Ser Val Lys Leu Gln
216           910              915              920
217 agt ttt ttc agc cag tat aag aaa ccc atc tgt cag ttt ttg gta gaa    2896
218 Ser Phe Phe Ser Gln Tyr Lys Lys Pro Ile Cys Gln Phe Leu Val Glu
219      925              930              935
220 tcc ctt cac tct agt cag atg aca gca ctt ccg aat act cca tgc cag    2944
221 Ser Leu His Ser Ser Gln Met Thr Ala Leu Pro Asn Thr Pro Cys Gln
222 940              945              950              955
223 aat gct gac gtg cga aaa caa gat gtg gct cac cag aga gaa atg gct    2992
224 Asn Ala Asp Val Arg Lys Gln Asp Val Ala His Gln Arg Glu Met Ala
225           960              965              970
226 tta aat acg ttg tct gaa att gcc aac gtt ttc gac ttt cct gat ctt    3040
227 Leu Asn Thr Leu Ser Glu Ile Ala Asn Val Phe Asp Phe Pro Asp Leu
228           975              980              985
229 aat cgt ttt ctt act agg aca tta caa gtt cta cta cct  gat ctt gct    3088
230 Asn Arg Phe Leu Thr Arg Thr Leu Gln Val Leu Leu Pro  Asp Leu Ala
231           990              995              1000
232 gcc aaa  gca agc cct gca gct  tct gct ctc att cga  act tta gga aaa   3136
233 Ala Lys  Ala Ser Pro Ala Ala  Ser Ala Leu Ile Arg  Thr Leu Gly Lys
234     1005              1010              1015
235 caa  tta aat gtc aat cgt  aga gag att tta ata  aac aac ttc aaa tat   3184
236 Gln  Leu Asn Val Asn Arg  Arg Glu Ile Leu Ile  Asn Asn Phe Lys Tyr
237 1020              1025              1030              1035
238 att ttt tct cat ttg gtc tgt tct tgt tcc aaa gat gaa tta gaa  cgt    3232
239 Ile Phe Ser His Leu Val Cys Ser Cys Ser Lys Asp Glu Leu Glu  Arg
240           1040              1045              1050
241 gcc ctt cat tat  ctg aag aat gaa aca  gaa att gaa ctg ggg  agc ctg   3280
242 Ala Leu His Tyr  Leu Lys Asn Glu Thr  Glu Ile Glu Leu Gly  Ser Leu
243           1055              1060              1065
244 ttg aga caa  gat ttc caa gga ttg  cat aat gaa tta ttg  ctg cgt att   3328
245 Leu Arg Gln  Asp Phe Gln Gly Leu  His Asn Glu Leu Leu  Leu Arg Ile
246      1070              1075              1080
247 gga gaa  cac tat caa cag gtt  ttt aat ggt ttg tca  ata ctt gcc tca   3376
248 Gly Glu  His Tyr Gln Gln Val  Phe Asn Gly Leu Ser  Ile Leu Ala Ser
249     1085              1090              1095
250 ttt  gca tcc agt gat gat  cca tat cag ggc ccg  aga gat atc ata tca   3424
251 Phe  Ala Ser Ser Asp Asp  Pro Tyr Gln Gly Pro  Arg Asp Ile Ile Ser
252 1100              1105              1110              1115
253 cct gaa ctg atg gct  gat tat tta caa ccc  aaa ttg ttg ggc att  ttg   3472
254 Pro Glu Leu Met Ala  Asp Tyr Leu Gln Pro  Lys Leu Leu Gly Ile  Leu
255           1120              1125              1130
256 gct ttt ttt aac  atg cag tta ctg agc  tct agt gtt ggc att  gaa gat   3520
257 Ala Phe Phe Asn  Met Gln Leu Leu Ser  Ser Ser Val Gly Ile  Glu Asp
258           1135              1140              1145
259 aag aaa atg  gcc ttg aac agt ttg  atg tct ttg atg aag  tta atg gga   3568
260 Lys Lys Met  Ala Leu Asn Ser Leu  Met Ser Leu Met Lys  Leu Met Gly
261           1150              1155              1160
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 05/22/2006
PATENT APPLICATION: US/10/685,258B   TIME: 11:56:28

Input Set : **A:\34132b.txt**
Output Set: **N:\CRF4\05222006\J685258B.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:12; Xaa Pos. 5,6,8
Seq#:14; Xaa Pos. 5

VERIFICATION SUMMARY   DATE: 05/22/2006
PATENT APPLICATION: US/10/685,258B   TIME: 11:56:28

Input Set : **A:\34132b.txt**
Output Set: **N:\CRF4\05222006\J685258B.raw**

L:9 M:270 C: Current Application Number differs, Replaced Current Application Number
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:1840 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0
L:1873 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0